IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF MISSISSIPPI

JOHN TYLER CLEMONS, *et al.*	)	
	)	
Plaintiffs,	)	
-v-	)	Case No.
	)	3:09-CV-00104-WAP-SAA
	)	
UNITED STATES DEPARTMENT OF COMMERCE; *et al.*,	)	
	)	
	)	
Defendants.	)	

AFFIDAVIT OF JEFFREY LADEWIG,

Jeffery Ladewig, being first duly sworn on oath, deposes, and says:

1. I am an Associate Professor at the University of Connecticut in the Department of Political Science. I was promoted to the rank of Associate Professor in 2009. From 2002 until 2009, I held the rank of Assistant Professor in the same department at University of Connecticut.
2. I have been retained by the law firm of Webster, Chamberlain, & Bean for the purposes of providing expert academic assistance in this lawsuit. I am being paid a customary and usual fee for my services.
3. I hold a Ph.D. from the University of Texas, Department of Government which was awarded in 2002. My dissertation was entitled: *Party Development and the Depoliticization of Interests*.

4. I received my Bachelor of Arts from the University of Wisconsin in 1993. I was a double major from the Department of Political Science and the Department of Economics.
5. My professional Vita is attached and labeled Exhibit 1.
6. Prior to the University of Connecticut, I was an Adjunct Professor at the University of Texas during my Ph.D. program.
7. I am the author of eleven scholarly articles published in peer-reviewed academic journals on a variety of topics in the field of political science.
8. I have presented remarks and at numerous professional conferences listed in my Vita. Much of the focus of my work has been on the subject of voting behavior both by members of the electorate and within the House of Representatives.
9. One of my published (and peer-reviewed) articles is entitled: "On the Causes and Consequences of and Remedies for Interstate Malapportionment of the U.S. House of Representatives." 2008. *Perspective on Politics* 6 (1): 89-107 (with Mathew Jasinski). This is one of the few scholarly research articles on the subject of the interstate malapportionment of the House of Representatives. A copy of this article is attached as Exhibit 2.
10. I am thoroughly familiar with the methodology employed for the apportionment of the House of Representatives as a result of my general work as a professor and researcher, especially as a result of my research and writing for the above-mentioned article.

11. I teach courses at the University of Connecticut in both American Politics and Political Economy. One of the courses I teach is entitled "Congress in Theory and Practice."

12. I have performed a variety of calculations concerning the interstate apportionment of Congress for the purposes of this lawsuit. I am thoroughly familiar with the relevant data and the mathematical calculations necessary to compute the apportionment of the House of Representative and to quantify the deviations (and related calculations) from the ideal district size for the several states.

13. All of the calculations I perform for this analysis use the "Hill method" (Method of Equal Proportions) that is required by federal statute (2 U.S.C. § 2a (a)) and was approved by the Supreme Court in *United States Dep't of Commerce v. Montana,* 503 U.S. 442 (1992).

14. Exhibit 3 (attached) shows the current apportionment plan (adopted after the Census of 2000) for the United States House of Representatives. It shows each state's population and shows the variances from the ideal district experienced by each state.

15. In the 2000 reapportionment the ideal district was 646,952 persons based on a national population of 281,424,177.

16. "Over-representation" means that a state has a lower population than the ideal district. The actual population and the percentage by which the state's population is *less* than the ideal district ("percentage of deviation) for the five most over-represented states after the 2000 reapportionment was as follows:

Wyoming, 1 district of 495,304 (+23.44%)
Rhode Island, 2 districts averaging 524,831 (+18.88%)
Nebraska, 3 districts averaging 571,790 (+11.62%)
Iowa, 5 districts averaging 586,385 (+9.36%)
West Virginia, 3 districts averaging 604,359 (+6.58%)

17. "Under-representation" means that a state has a higher population than the ideal district. The actual population and the percentage by which the state's population is *more* than the ideal district (percentage of deviation) for the five most under-represented states after the 2000 reapportionment was as follows:

Montana, 1 district of 905,316 (-39.94%)
Delaware, 1 district of 785,068 (-21.35%)
South Dakota, 1 district of 756,874 (-16.99%)
Utah, 3 districts averaging 745,571 (-15.24%)
Mississippi, 4 districts averaging 713,232 (-10.24%)

18. Another measure that the Supreme Court has used to assess one-person, one-vote is the actual number of individuals under-represented compared to the ideal district. The population deviation for the five most under-represented states, compare to the *ideal* district after the 2000 reapportionment was:

Montana, under-represented by 258,364 per district
Delaware, under-represented by 138,116 per district
South Dakota, under-represented by 109,922 per district
Utah, under-represented by 98,619 per district
Mississippi, under-represented by 66,280 per district

19. Another measure that the Supreme Court has used to assess one-person, one-vote cases is the population under-represented compared to the most over-represented district. The Maximum Deviation (stated as the number of individuals) for the

five most under-represented states, compare to the *smallest* district after the 2000 reapportionment was:

Montana, under-represented by 410,012 per district
Delaware, under-represented by 289,764 per district
South Dakota, under-represented by 261,570 per district
Utah, under-represented by 250,267 per district
Mississippi, under-represented by 217,928 per district

20. Since Mississippi and Utah are multi-member states, it is instructive to look at the total number of under-represented persons in each state compared to the smallest district, or Total Maximum Deviation (stated as the total number of individuals). This calculation takes the under-representation "per-district" number from the preceding paragraph and multiplies it by the number of districts. Mississippi has a total under-representation of 871,712. Utah has a total under-representation of 750,801. These five states together have a total under-representation of 2,583,859 compared to the *smallest* district.

21. The Supreme Court has also looked at the ratio of voters in the most over-represented districts compared to those in the most-under-represented districts. The ratio for Montana to Wyoming is 1.83 to 1. This means that it takes 183 voters in Montana to equal 100 voters in Wyoming. The ratio for the other four states follows:

Delaware	1.59 to 1 (159 DE voters to equal 100 in WY)
South Dakota	1.53 to 1 (153 SD voters to equal 100 in WY)
Utah	1.51 to 1 (151 UT voters to equal 100 in WY)
Mississippi	1.44 to 1 (144 MS voters to equal 100 in WY)

22. To give context for the figures above, it is instructive to review the maximum deviation to be found *unconstitutional* in the four one-person, one-vote cases involving intrastate apportionment for seats in the United States House of Representatives. In *Kirkpatrick v. Preisler,* 394 U.S. 526 (1969), the Maximum Deviation (stated as a percentage) was 5.97%. In *Wells v. Rockefeller*, 394 U.S. 542 (1969), the maximum deviation was 13.096%. In *White v. Weiser*, 412 U.S. 783 (1973), the maximum deviation was 4.13%. In *Karcher v. Daggett*, 462 U.S. 725 (1983), the maximum deviation was 0.6984%. The maximum deviation that is found here is 63.38% (adding Montana and Wyoming). More details concerning the comparison of the deviation levels from these four cases to those in the current litigation is contained in Exhibit 4.

23. It is clear that raising the size of the House of Representatives will produce lower levels of under-representation and less deviation from the size of the ideal district. Unless otherwise indicated, all calculations which follow use the numbers from the official Census of 2000.

24. It is virtually impossible to make an interstate apportionment of the House of Representatives that achieves no population deviation between the states. This is a function of containing districts within a single state and having a minimum number of 30,000 persons per district. However, it is clearly possible to have much lower deviation and much less under-representation than is currently the case. If the House were increased to 9,172, this would be the largest possible House of Representatives where no state had districts smaller than 30,000

persons. The maximum deviation for a House of 9,172 would be 1,269 persons or a 4.14% maximum deviation.

25. If the size of the House were increased, the Maximum Deviation (stated as the number of individuals) would be reduced as indicated below. For each of the examples given, it is the smallest size of the House of Representatives that would reach the deviation target-level indicated.

Target	Size of House	Actual Deviation
Current	435	410,012
Below 400,000	441	332,410
Below 300,000	523	270,200
Below 250,000	652	219,886
Below 200,000	658	190,359
Below 150,000	806	144,882
Below 100,000	932	76,667
Below 50,000	1405	49,484
Below 20,000	1741	16,884

26. If the size of the House were increased, the Maximum Deviation (stated as a percentage) would be reduced as indicated below. For each of the examples given, it is the smallest size of the House of Representatives that would reach the deviation target-level indicated.

Target	Size of House	Actual Deviation
Current	435	63.38%
Below 60%	441	52.09%
Below 50%	529	49.87%
Below 40%	913	33.17%
Below 30%	932	25.39%
Below 20%	1664	17.55%
Below 15%	1704	14.57%
Below 10%	1760	9.91%

27. Plaintiffs have presented two plans to this Court. Plan A (Exhibit 5) calls for a House of 932 seats. Plan B originally called for a House of 1761 seats, but a House of 1760 produces slightly better results and I have made projections on this latter number. These two plans (A and B) were designed to be the smallest House possible to achieve certain goals for minimizing the deviation and diminishing the problem of under-representation. Exhibit 5 sets for the details of Plan A. It gives the numbers of seats for each state, plus it gives the various measurements of deviation set forth in Exhibit 3 for the current apportionment plan. Exhibit 6 provides the same information for the adjusted version of Plan B.

28. Plan A is the smallest size for a House of Representatives that achieves two independent milestones in reduction of under-representation. A House of 932 seats is the smallest possible size to have a Maximum Deviation (stated as the number of individuals) of less than 100,000 persons per district. The Maximum Deviation (stated as the number of individuals) for Plan A would be 76,667. Also Plan A is the first time (i.e., the smallest House size) where the Maximum Deviation (stated as a percentage) falls below 30%. The Maximum Deviation (stated as a percentage) for Plan A is 25.39%.

29. The adjusted Plan B (Exhibit 6) (1760 seats) is the smallest size for a House of Representatives where the Maximum Deviation (stated as a percentage) falls below 10%. The maximum deviation would be 9.91%. The Maximum Deviation (state as the number of individuals) for Plan B would be 15,850.

30. A House of 932 or a House of 1760 may not be the lowest possible size of a House of Representatives after the 2010 Census to achieve these same milestones

in the reduction of the problems of deviation and under-representation. But it is absolutely certain that by increasing the size of the House after the 2010 Census that these same milestones can be achieved. By way of illustration, I have projected a Plan C using the population estimates for 2009 published by the Census Department. See, Exhibit 7. This projection is made only to illustrate that it is possible to achieve these same milestones after the 2010 Census. Obviously, the actual results from the 2010 Census will vary but the principles illustrated by the 2009 example will not change.

31. Plan C (using the 2009 Census Department estimates) would achieve essentially the same results as Plan A. With a House of 927 seats, the total population deviation would be less than 100,000. The actual number would be 88,530. It would produce a maximum deviation as a percentage of 26.78%.

32. If Congress desires (or is ordered) to adjust its size to reach various deviation levels, it will be important that the size of the House not be frozen at a particular level. A difference of just one House member can make radical differences in the deviation levels. This could be described as a population "sweet spot" where there are dramatic improvements in the Maximum Deviations by the addition of just one seat to the House. The following examples based on the 2000 apportionment data illustrate the point:

House Size	Population Deviation	Percentage Deviation
440	410,012	64.10%
441	332,410	52.09%
651	295,424	68.34%
652	219,886	50.94%

805	193,532	55.36%
806	144,882	41.49%
931	102,235	33.82%
932	76,667	25.39%

33. It is inherent in the nature of these calculations that these "sweet spots" (considerable improvements in the Maximum Deviation levels by the addition of a single seat in the House) will vary from Census to Census and there is no way to predict the precise point for such "sweet spots" in advance. But it is also inherent in the nature of the calculations that such spots will exist after each Census.

34. I have prepared a more detailed review of the apportionment history of the House of Representatives starting in 1790. It is attached as Exhibit 8. Each decade's reapportionment shows a variety of measurements of deviation including the maximum deviation in terms of both the number of individuals and as a percentage.

35. The history of apportionment data attached to the government's brief fails to reveal or consider significant changes in our nation's apportionment practices over the years. The Supreme Court's decision in *United States Dep't of Commerce v. Montana,* reviews the relevant changes in the various methods of calculating the apportionment of the House. The Jefferson method was used after the 1790 census and for each of the following four censuses. This method ignored all fractional remainders. This method makes no sense if there is a predetermined size of the House of Representatives. Balinski and Young, in *Fair Representation: Meeting the Ideal of One Man, One* Vote, Yale University Press New Haven 1982) (also cited by the government's brief) describe such plans:

"The habit of thought in those days was not first to determine the total number of seats or *house size* and then to distribute them, but rather to fix upon some 'ratio of representation,' that is to declare that there shall be 'one representative for every *x* persons,' and then allow the house size to fall where it may." *Fair Representation* at 10-11.

36. The next method that was employed was advanced by Daniel Webster. The Webster method rounded all fractions to the nearest whole number. It was adopted after the 1840 census. This method also makes no sense if there is a predetermined size of the House.

37. After the 1850 census, a method that was originally created by Alexander Hamilton was used. Balinski and Young describe the Hamilton plan as: "Choose the size of the house to be apportioned. Find the quotas and give to each state the whole number contained in its quota. Assign any seats which are as yet unapportioned to those states having the largest fractions or remainders." *Fair Representation at* 17. The Hamilton method was used from 1850 through 1900.

38. After the 1910 census Congress reverted to the Webster method. The Webster method chooses a ratio first, and then the size of the House is determined by the calculations that follow. It was from this method that the size of the House was initially set at 433 members. New Mexico and Arizona were admitted during this decade and they each received an additional seat.

39. No reapportionment was done after the 1920 Census.

40. After the 1930 census, upon the recommendation of a group of mathematicians, Congress adopted the Hill method, formally known as the Method of Equal

Proportions. This method was permanently adopted by statute in 1941 and has been used for every reapportionment since that time.

41. The other significant factor in the history of reapportionment was the admission of new states, which tended to considerably skew the deviation numbers. The single most important example of this problem came from the admission of Nevada.

42. Nevada was admitted in 1864, despite the fact that it had a population below the normal minimum required for admission. The usual minimum was 60,000 and Nevada's population in the 1870 census was 42,491. Nevada's comparatively tiny population made it the most over-represented state for every single census from the 1870 census through the 1950 census. Its percentage of over-representation was consistently the lion's share of the Maximum Deviation (stated as a percentage) for each of those decades. The following chart shows the Maximum Deviation (stated as a percentage) for each of those decades. It also shows Nevada's contribution to the Maximum Deviation.

Census Date	Maximum Deviation	Nevada's Percent
1870	80.32%	67.45%
1880	86.93%	59.01%
1890	92.20%	73.69%
1900	121.45%	78.95%
1910	70.24%	61.82%
1930	110.30%	69.22%
1940	82.67%	63.39%
1950	68.45%	53.54%

43. Alaska and Hawaii were both admitted to the Union in 1959. I am unaware of any serious discussions of any other possible area being admitted to the Union in the foreseeable future. Even if Puerto Rico were admitted to the Union, the U.S.

Census currently estimates its population as 3,967,288 individuals. Its size would not create a scenario of significant over-representation that was presented in the case of Nevada.

44. Even if the District of Columbia were given status to receive membership in the House of Representatives, its currently estimated population by the U.S. Census of 599,657 is more than 10% larger than Wyoming's. As such, it would also not increase the maximum deviation measurement of under-representation.

45. The most revealing statistic from the history of American apportionment is the growth of the Maximum Deviation (stated as the number of individuals). I include data for the years 2010, 2020, and 2030 based on the population estimates published by the Census Department (http://www.census.gov/population/www/projections/projectionsagesex.html) to demonstrate the expected impact on the Maximum Deviation if the size of the House remains at 435.

Census year	Maximum Deviation
1790	22,380
1800	28,423
1810	5,615
1820	34,163
1830	27,674
1840	35,186
1850	59,694
1860	83,221
1870	104,847
1880	132,061
1890	160,338
1900	234,607
1910	147,734
1930	309,952
1940	248,984
1950	235,865
1960	258,466

1970	320,114
1980	296,833
1990	347,680
2000	410,012
2010	448,712
2020	491,787
2030	629,962

46. There is every reason to believe that the levels of Maximum Deviation will continue to grow over time.

47. An illustration of the inequalities inherent in a system where the House size is fixed in a nation with a significant population growth can be seen if we consider the disparities that would be present if Congress had chosen to freeze the size of the House at 300 members rather than at 435. See Exhibit 9. Under this plan the number of states with a single member of the House would rise to twelve states (as compared to the current number of seven states.) The state with the largest *average* district size would be Idaho with a single district of 1,297,274. The state with the smallest *average* district size would be Wyoming with a single district of 495,304. The Maximum Deviation (stated as the number of individuals) would be 801,970 persons.

48. The United States is now a nation with a stable apportionment regime: that is, a constant number of states and a constant apportionment method. This began with the 1960 census with the admission of Alaska and Hawaii as well as the consistent use of the Method of Equal Proportions. This time period correlates closely with the Supreme Court's announcement of the one-person, one-vote requirement in 1964. From a statistical standpoint, all that preceded the 1960 census is often a case of comparing "apples and oranges".

49. The deviation levels we are experiencing will undoubtedly get worse decade by decade so long as the House of Representatives is frozen at 435.

50. Exhibit 10 shows the population and representation patterns of all the nations that are members of OECD (Organization for Economic Co-operation and Development), consisting of thirty developed nations of the world with modern democratic republics.

51. The United States has, by far, the largest per-district size of any OECD nation. Moreover, the United States does not have the largest legislative body among these nations. The United Kingdom, with approximately one-fifth the population of the United States, has a House of Commons of 646 members. Germany, with a population, of approximately one-fourth the size of ours, has a lower chamber of 622 members. France, with a population of about one-fifth that of the U.S., has a lower house with 577 members. Turkey, with a population of roughly one-fourth of ours, has a lower house of 550 members. Finally, Mexico, with a population approximately one-third of that of the U.S., has a lower house of 500 members.

52. It is impossible to legitimately claim that a western-style democracy cannot function properly with a house larger than 435 in light of these numbers.

Jeffery Ladewig

Subscribed and sworn to before me this 18th day of February, 2010.

Notary Public, State of Connecticut

SUSAN P. HAYES
NOTARY PUBLIC
MY COMMISSION EXPIRES OCT. 31, 2014